



# MISSOURI BOTANICAL GARDEN

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## GEORGE ENGELMANN BOTANICAL NOTEBOOKS

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Cochlearia  
in Gard Chron. Feb 23 1878  
in Arum with 2 spathes  
in Testotolosy



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cm

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MISSOURI  
BOTANICAL  
GARDEN

3710



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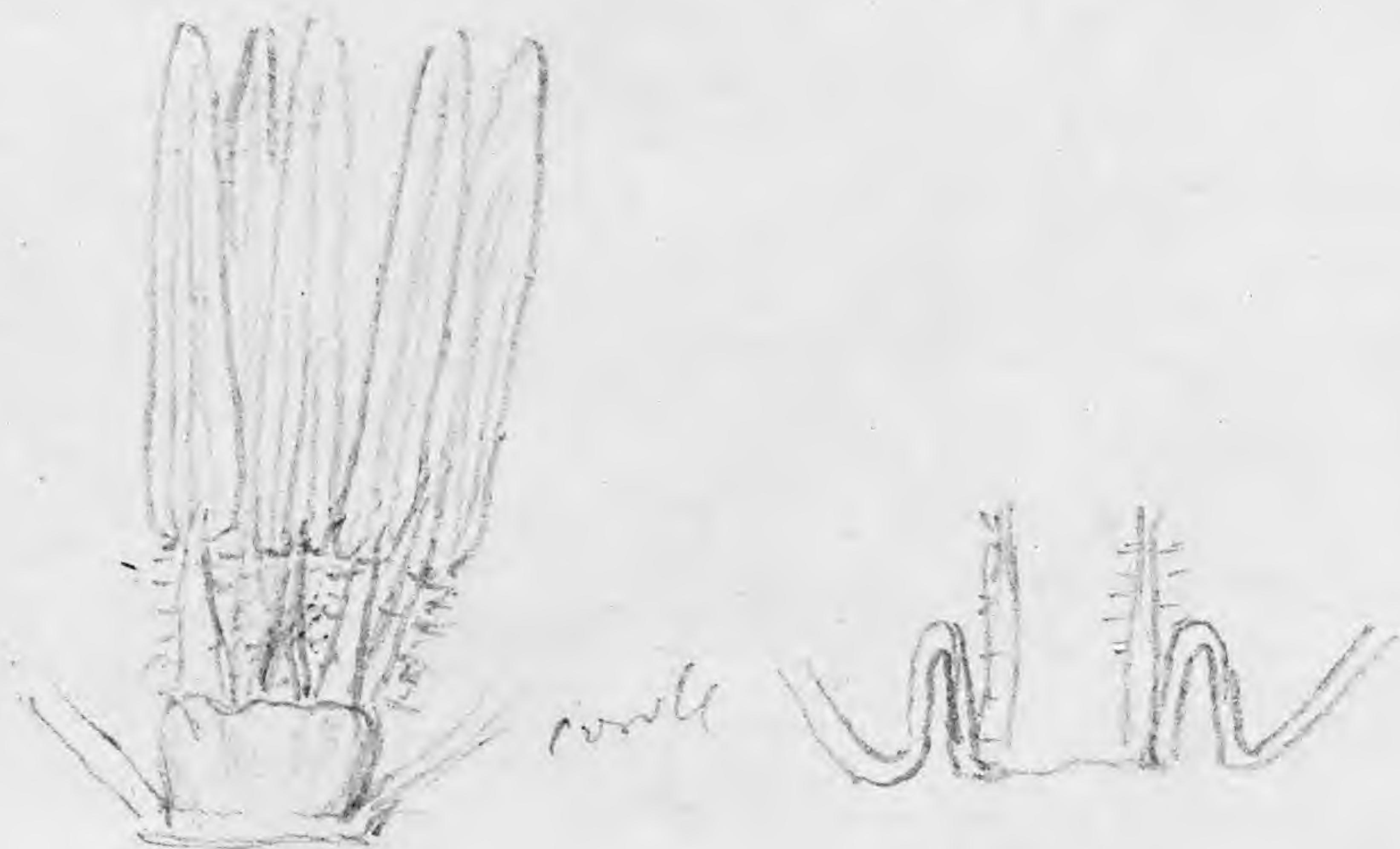
MISSOURI  
BOTANICAL  
GARDEN

84 Amb

*Cinchona alba*

Aug 30 63

to B. Misso



X 415



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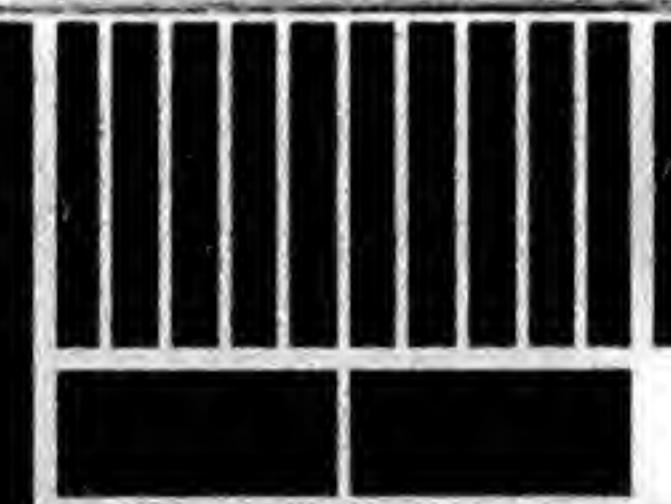
MISSOURI  
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GARDEN

3711

ALEX. LEITCH,  
APOTHECARY & PHARMACEUTIST.

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



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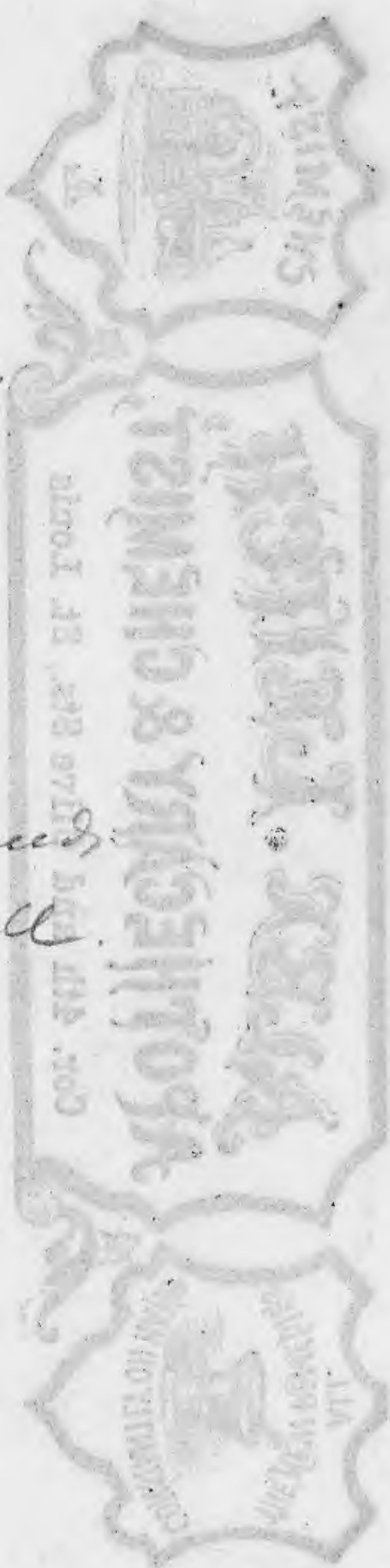
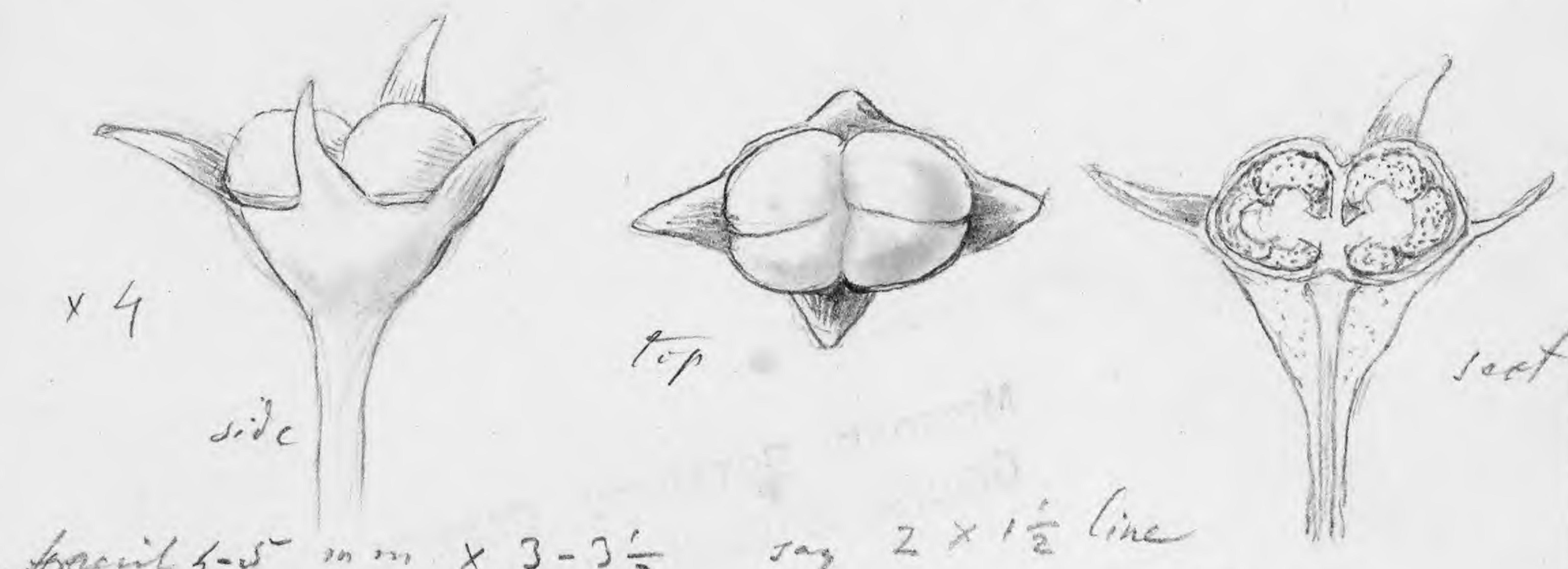
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GARDEN

*Houstonia minima*

May 3 1863



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3712



Cor. 4th and Olive Sts., St. Louis

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84 *Rubiaceae*  
85 *Valerianaceae*  
~~*Rosaceae*~~ — ~~*Valerianaceae*~~



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4001 copy 2

from copy 1

66.5 fm

Sp. of *Leucosia* (L.)  
" " *Leucosia*  
" " *Leucosia*



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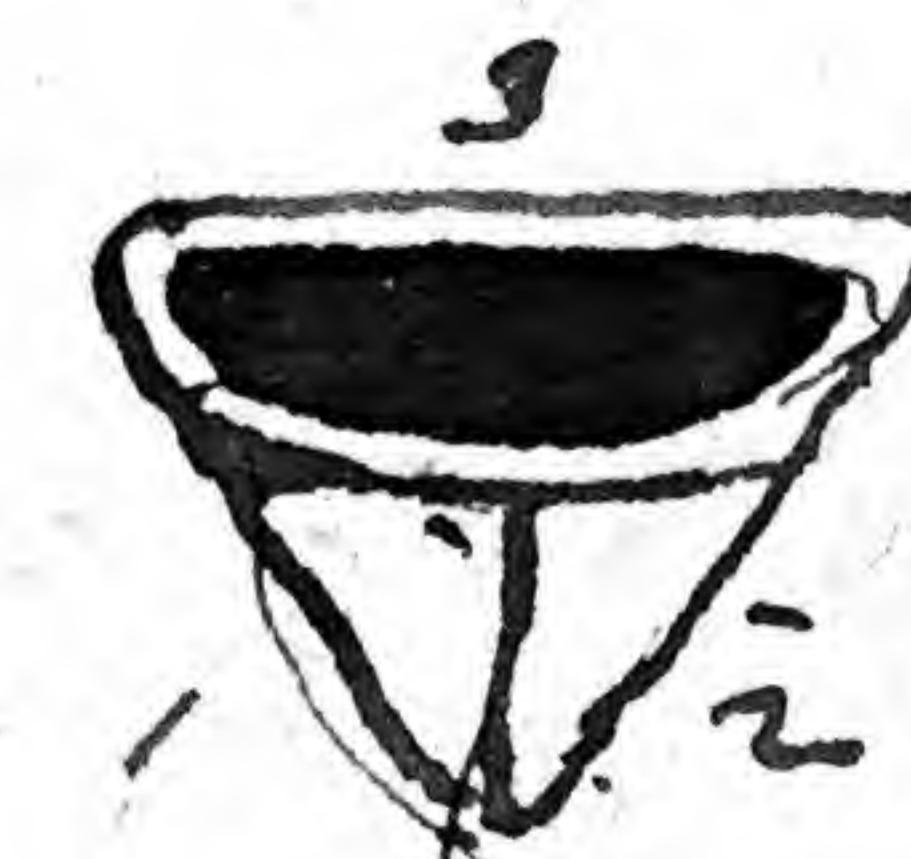
olitoria



Section of Seed

1. hollow 2. seed. 3. corky

Fayppoum T. Alp.



1. & 2. hollow, 3. seed

Ohio

longiflora



Arkansas

1. & 2. hollow, 3. seed

carinata



1. & 2. hollow, 3. seed

Surinam



Morrisonii  
dentata ant.



1. & 2. small cavities, 3. seed

coronata



eriocarpa



dentata



corm copiae

vesicaria

echinata



radiata Mx



St Louis Mo. 1841



stenocarpa Engelm.



100m. Texas April 48.



umbilicata Salmant.



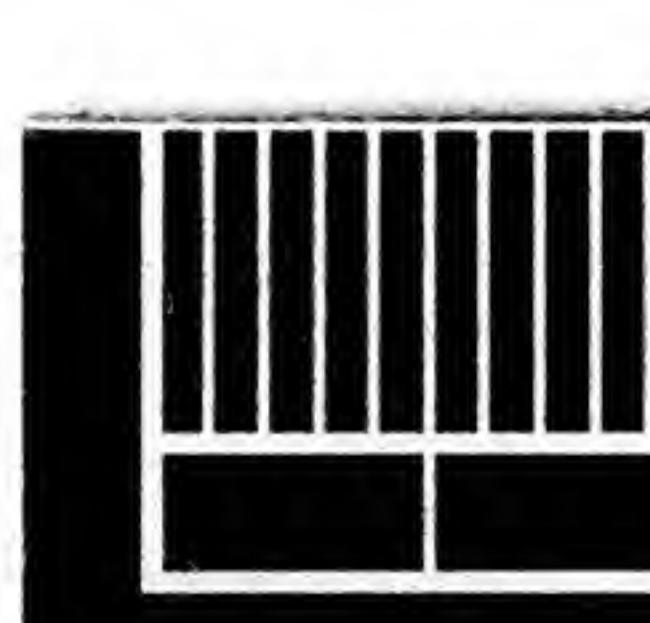
Cincinnati



amarella Benth.



Comanche Co. Texas 1849



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3713

No duplicates!

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MISSOURI  
BOTANICAL  
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Compositae



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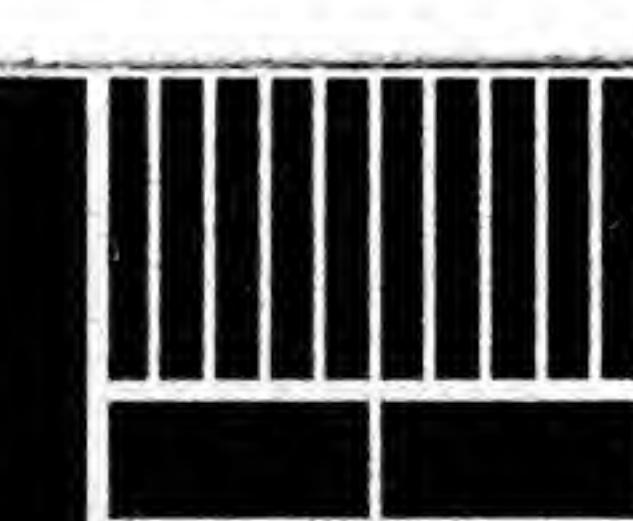


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Order of flowering of

Solidago

- Aster

August. *S. missouriensis*

*A. patens*

*rigidus*

*agrenus*

*S. nemoralis* p.

*A. patens*

*A. rigidus*

September *S. Tigrina*

*A. agrenus*

*S. canadensis*

*A. ericoides*

*S. gigantea*

*A. laevis*

*S. nemoralis*

*A. tubinellus*

*S. ciliolata*

*A. multiflorum*

*S. drummondii*

*A. cordifolius*

*S. speciosa*

*A. undulatum*?

*A. sericeus*

*A. canescens*

*A. novae Angl.*

*A. frigidus*

*A. friderici*

*A. tenuifolius*

*A. oblongifolius*



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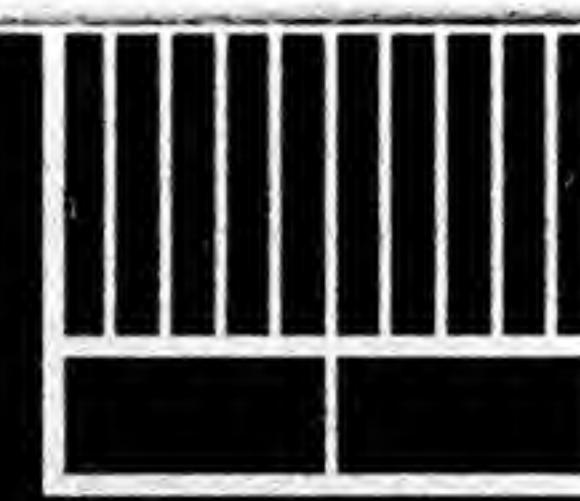
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*Baccharis pilularis* ♀  
in Berkeley Canyon  
12 feet high, circumference  
of stem 8 inches



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GARDEN

co

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Engelm



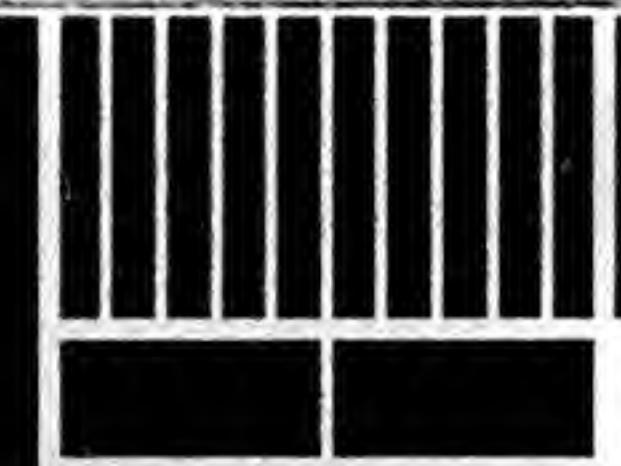

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16. Chiantemone dom. California

~~see S. uliginosus?~~  
S. nemorosa  
nemorosa  
cordifolia

S. nemorosa

Hibiscus  
S. anomala S. radula S. petiolaris

~~A. cordifolia~~ S. patens A. anomala S. turbidella A. turbidella  
A. patens  
A. cordifolia & patens

2 ~~S. nemorosa~~  
S. nemorosa

Hebe  
Hebe  
Hebe  
Hebe

32 21 62  
20 89 53  
21 61

14

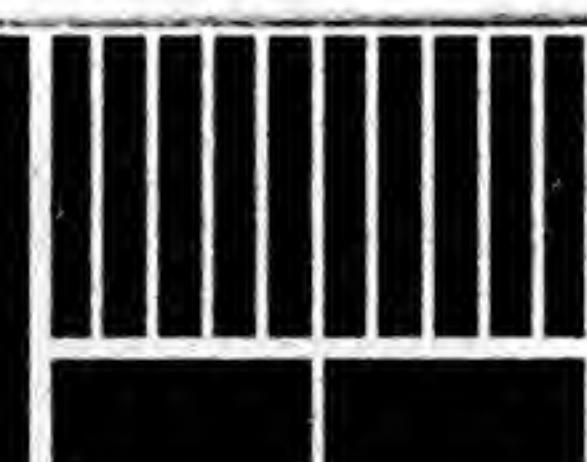
5 Solidago  
& Aster  
1 Silene  
2 Amorpha  
, Vitis (ripar.)

Rosa  
Ceanothus  
Monarda  
Glossum  
Viola pedata  
Penstemon

Van Kiani's 2 Nov 1870

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112



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July 1<sup>st</sup> 1878

		Stomata of S. Ghium	
Sight - Composite	N. C. Curtis	upper side magn. 150 - field 18-20 sta. = 11 in.	23-26,000 }
upper side magn. 150 - field 18-20 sta. = 11 in.			27-40,000 }
upper side magn. 150 - field 18-20 sta. = 11 in.			47-50,000 }
upper side magn. 150 - field 18-20 sta. = 11 in.			54-63,000 }
<i>S. latifolia</i> <del>lanceolata</del>			
upper side $\times 150$		48-50	62-65,000 }
upper side $\times 280$		17-20	75-90,000 }
upper side $\times 150$		54-58	69-75,000 }
upper side $\times 280$		14-17	63-71,000 }
<i>S. latifolia</i> <del>lanceolata</del>			
upper side $\times 100$		38-40	48-50,000 }
upper side $\times 280$		9-10	40-50,000 }
upper side $\times 150$		same as opp	48-57,000 }
upper side $\times 150$		26-30	40-50,000 }
upper side $\times 280$		9-10	33-39,000 }
upper side $\times 150$		30-36	39-46,000 }
upper side $\times 280$		10-16	45-50,000 }
<i>S. Strobliana</i>			
upper side $\times 150$		36-38	46-49,000 }
upper side $\times 280$		10-13	45-58,000 }
lower side $\times 150$		52-55	67-71,000 }
lower side $\times 280$		15-19	67-85,000 }
<i>S. dentata</i> opposite		none	
lower side			
lower side $\times 150$		50-55	67-71,000 }
lower side $\times 280$		15-16	67-76,000 }
<i>S. rugata</i> upper	$\times 150$	13-20	16,000-26,000 }
<i>S. rugata</i> rough	$\times 280$	2-6	9,000-23,000 }
lower			
smooth $\times 150$		45-55	58-71,000 }
smooth $\times 280$		12-18	53-81,000 }
<i>S. Alabam</i>			
upper smooth	$\times 150$	24-37	31-48,000 }
upper smooth	$\times 280$	10-13	45-54,000 }
lower smooth	$\times 150$	26-30	87-90,000 }
lower smooth	$\times 280$	32-38	144-170,000 }



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
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cm

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**ARTHUR T. HOLLISTER,**

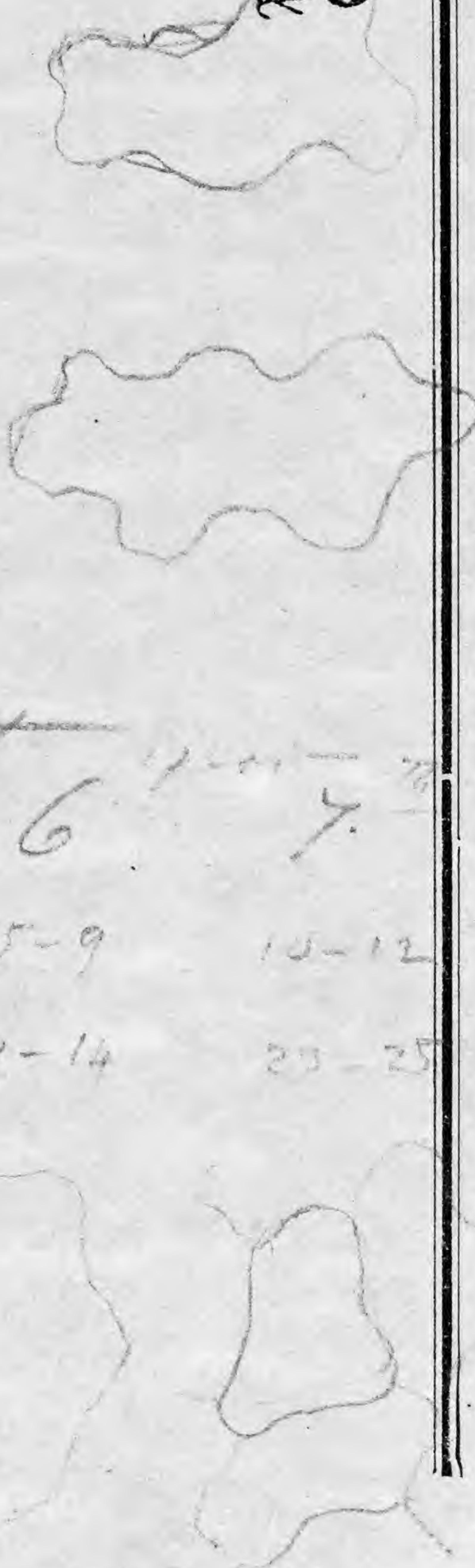
Druggist,

301 South Fifth, S. W. Cor. 5th & Myrtle, St. Louis, Mo.

May 280  
May 25 '78

R

*Solpium*  
on one side  
to the side



St Louis, Mo. ~~Common~~  
13-14 ~~Stom~~ ~~1~~ ~~1~~ x 280  
10-12

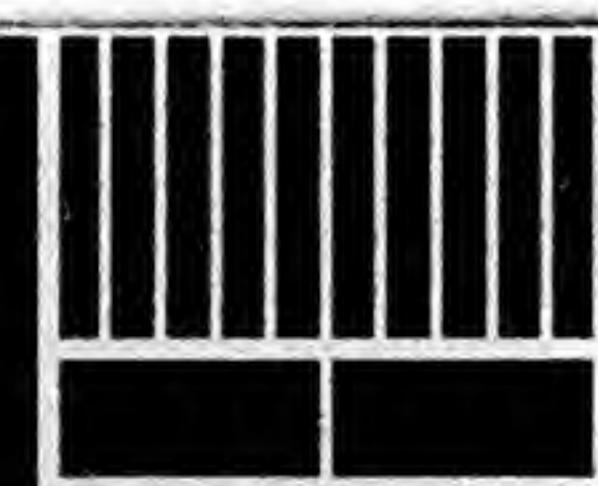
Wexor  
12-14  
12

*Solpium*, prepared in June  
left specm

upper side 1. 10-8 2. 11-14 3. 9-10 4. 10-12 5. 0 6. 5-9 7. 10-12  
lower side no stem 16-19 10-12 12-14 13-14 11-14 23-25

coll of 1964

size



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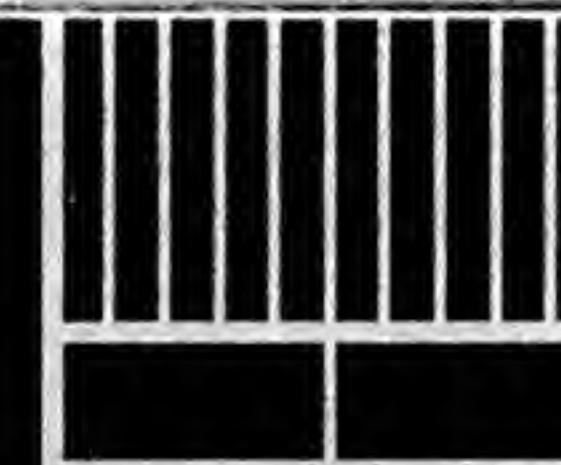
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cm

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Scandola above 100-130,000 stomach to H. ind.  
below 120-150,000

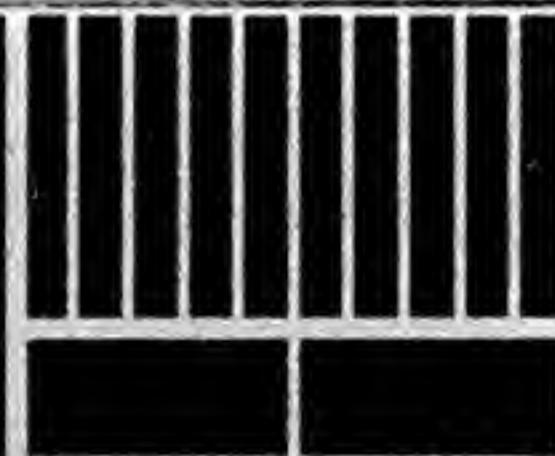
Cardiosis above scarcely any  
below 150-180,000

---

*S. lacini* 40-60,000 above (similar  
60-70,000 below (similar  
cells

other *S. l.* comp. very similar  
probably with similar helio-  
sph. properties

Others have fewer above and more  
usually fuzzy as many as use  
stom. color, ~~and~~ <sup>and</sup> ~~not~~ <sup>not</sup> able to identify  
and in one spec. is white  
& have not been able to identify yet  
now at all above



0 1 2 3 4 5 6 7 8 9 10  
cm

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MISSOURI  
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3720

By order of

Dear Sir:

Secretary.

Chairman.

AMERICAN ASSOCIATION FOR ADVANCEMENT OF SCIENCE,

LOCAL COMMITTEE

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

Outpost




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3721

ARTHUR T. HOLLISTER,  
Druggist,

301 South Fifth, S. W. Cor. 5th & Myrtle, St. Louis, Mo.

on lower side in field of magn. 150 I counted about 55  
stomata and scarcely 1 on upper.  
proportion seems to be 1:100

In field of 0.80" diameter (magn. 150 diam.) 50-50  
0.50" = 64,000 - 71,000  
0.43" 280 - 13.15  
0.144" = 59,000 - 68,000  
0.29" 0.065" (a 415-) 6 - 9  
average 60-70,000 = 58,000 - 67,000

stomata  $\frac{18}{415} = 0.043$  mm long or about  $\frac{1}{50}$  line  
cells  $\frac{20-50}{415} 0.048 - 0.120$  mm long  $\frac{1}{50} - \frac{1}{15}$  line

Rx

half as many stomata as in *Laetilia Scariola*  
and only on lower side.

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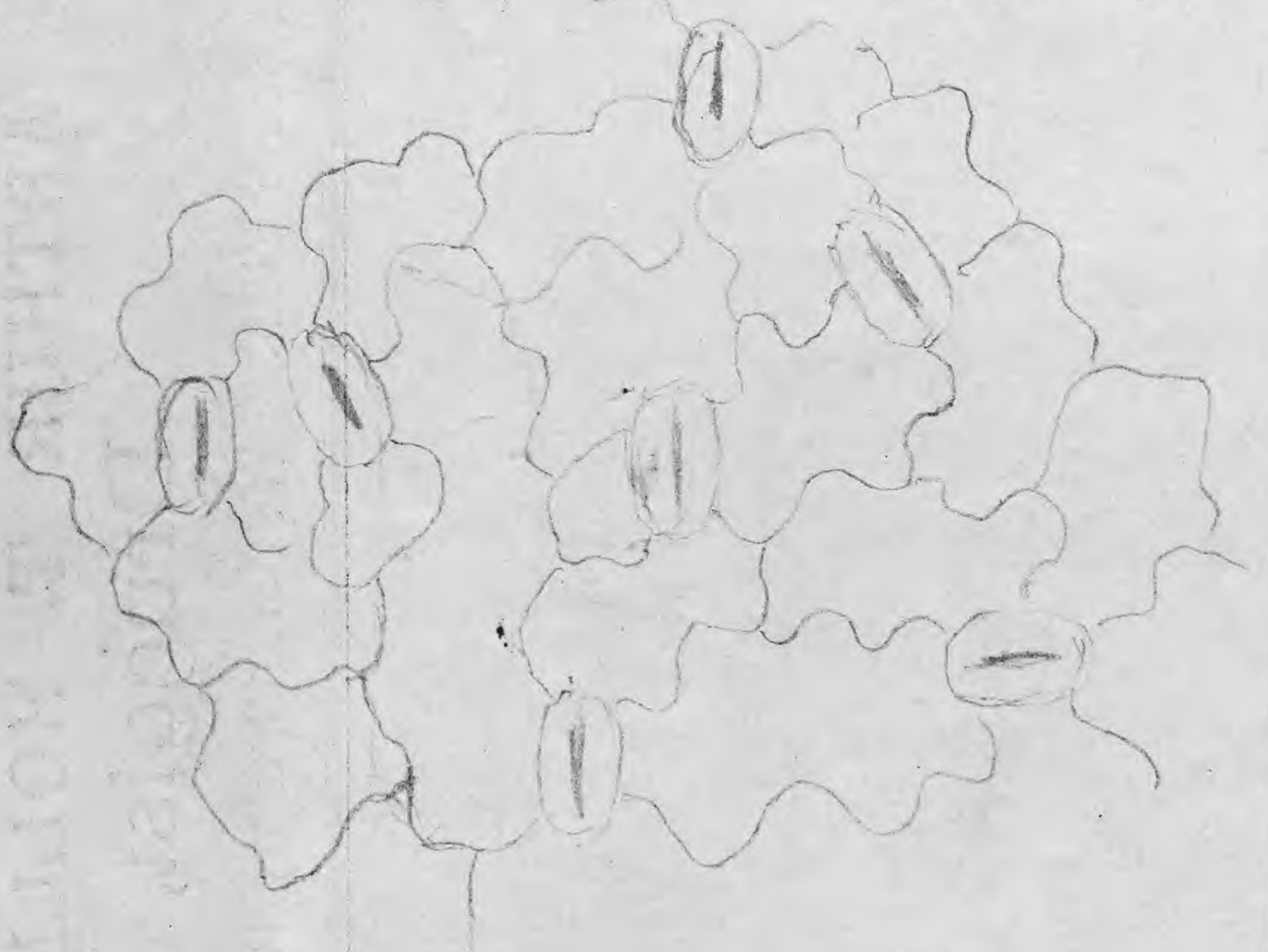
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*Lactuca Scandens*

Adams July 4 1878



epidermis of lower side x 415

170,000 - 190,000 stomata  
to square inch

6 mm ind. abt 8 stom.

stomata  $\frac{10}{415} \text{ mm} = 0.024 \text{ mm} = 0.011 \text{ in. or } \frac{1}{90} \text{ line}$



0  
cm

1 2 3 4 5 6 7 8 9 10

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ARTHUR T. HOLLISTER,

Druggist,

301 South Fifth, S. W. Cor. 5th & Myrtle, St. Louis, Mo.

R  
96  
17  
67.2  
96  
1632.00

× 4500

37

31500

135  
166,500

135

864  
96  
182.5

415 full upside 19.16 18.00  
under 17-21 19

37-44 above  
× 280

40-44 below

4500

40

18000

18000

198

31500

135

166,500

135

166,500

135

166,500

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135

166,500

leaf of 2 year old plant, oval, obtuse  
in my garden *cordifolii - sessile*

green above  
glaucous  
below

epidermis  
of upper  
surface  
no stomata  
cells larger and more numerous

$\times 280$



epidermis  
of lower  
surface

26 stomata  
in field  
 $\approx 130,000$   
 $\approx 160,000$

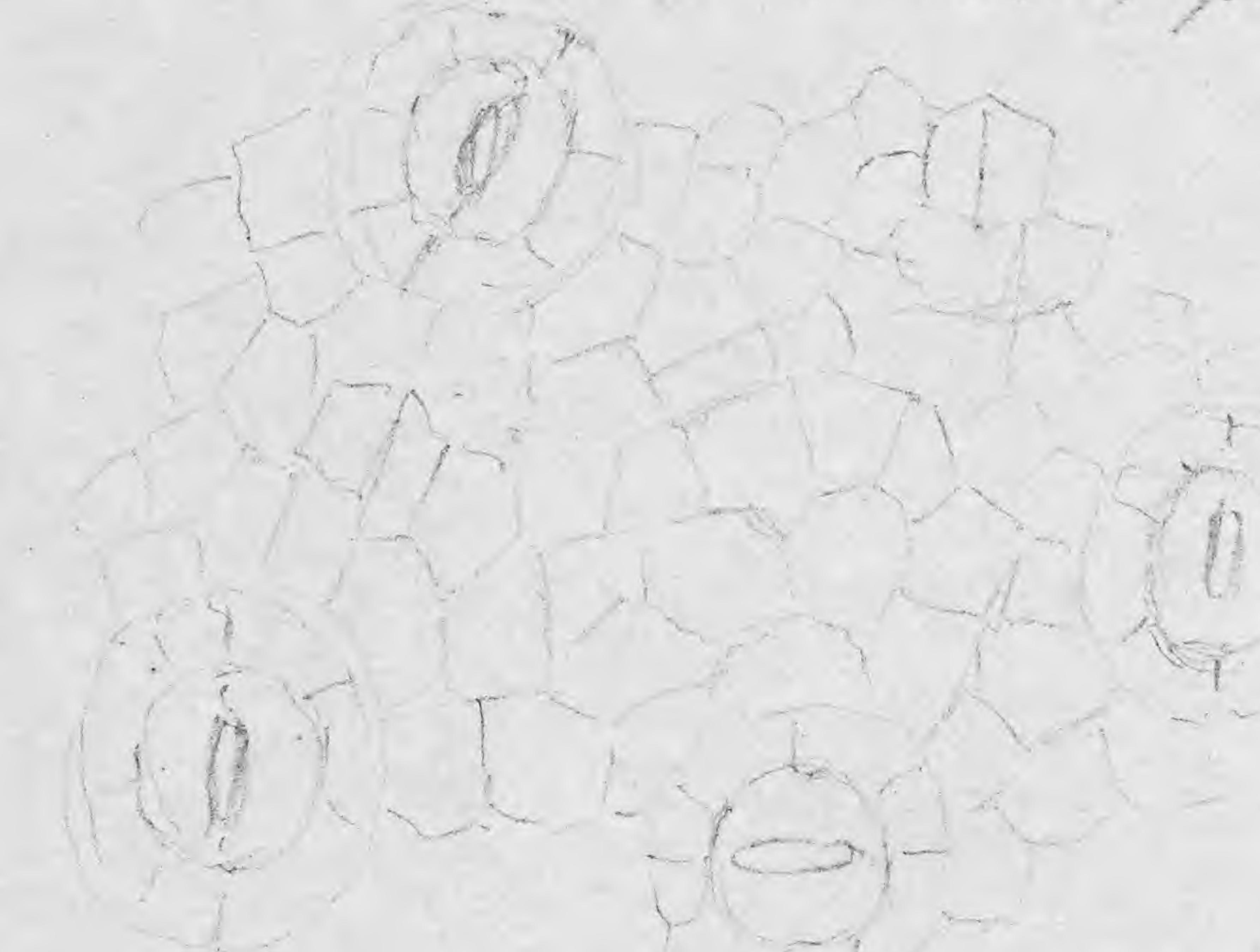
$\approx 1$  inch



*Eucalyptus globulus*

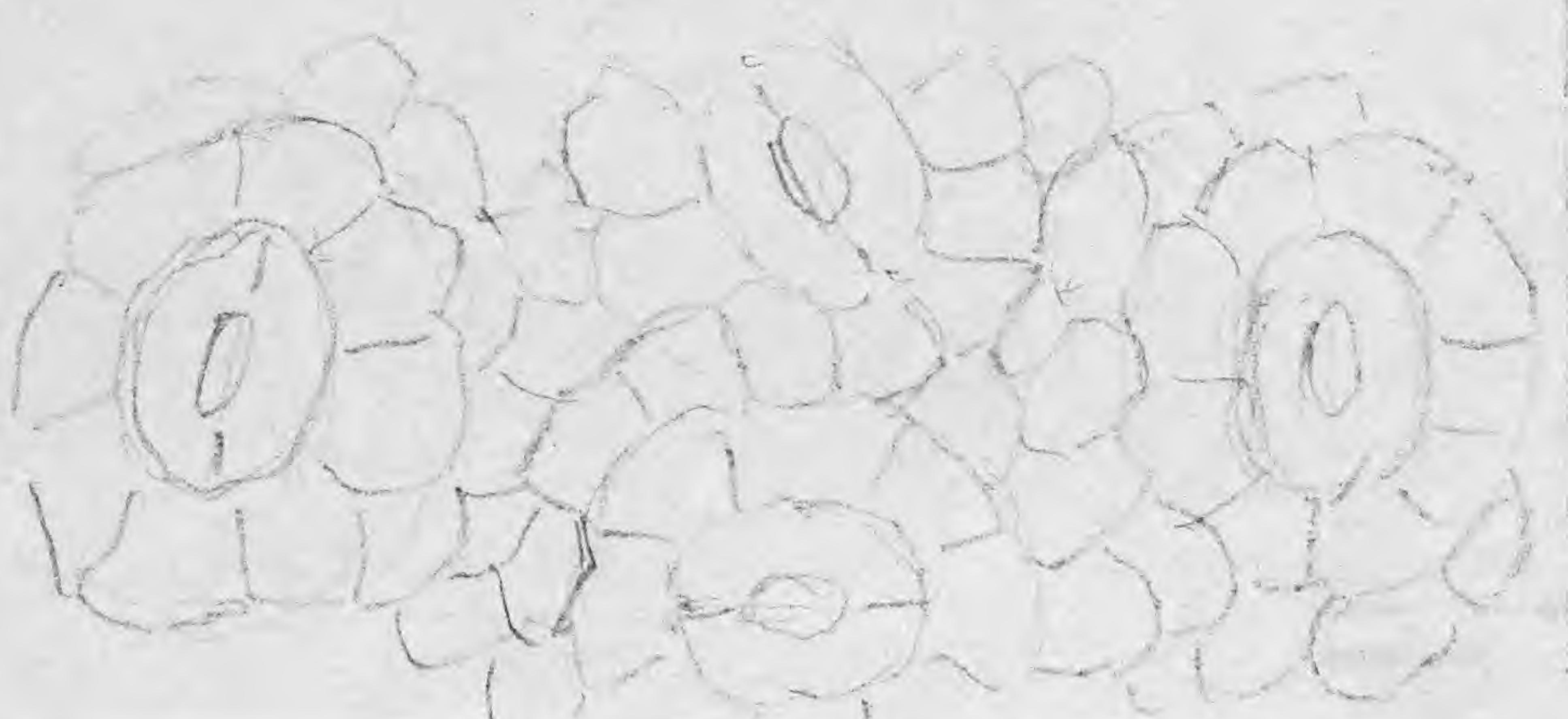
Oct 17 1878

leaf of an old tree in Hort. of Naples.  
obliqua, laevigata, petiolata, petiolata  
twisted



upper surface  
 $\times 280$

stomata  
 $30 - 40,000$   
 $\approx 1$  inch



lower surface  
 $\times 280$

stomata  
 $45 - 55,000$   
 $\approx 1$  inch



0 1 2 3 4 5 6 7 8 9 10

cm

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## ARTHUR T. HOLLISTER,

Druggist,

MISSOURI BOTANICAL GARDEN

301 South Fifth St. W. Cor. 5th &amp; Myrtle, St. Louis, Mo.

Rx

3	
	65.00
36	
	270.00
135	
	162.00

45.00	
32	
	318.00 - 45.00
45.00	

45.00	
	78

26	
	338.00

180.00	
45	
	135.00

45	
	37

13	
	114

0	
	111

135.00	
	37

45	
	481

26	
	1000
	17
	87
	29
	377

37	
	283

13	
	171

0	
	38

114	
	38

37	
	496

481	
-----	--

old leaf above 26-29 (+10) 11300  
below 37-38 - -

48-49.000

mag 280 x 415.00

below 1-10 x 415.00

below 10-14 "

Thru above 30-45.000

below 45-60.000

old leaf 25000

rest above 30000 - 40000 starts to

below 45000 - 55000

50000



0 1 2 3 4 5 6 7 8 9 10  
cm

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